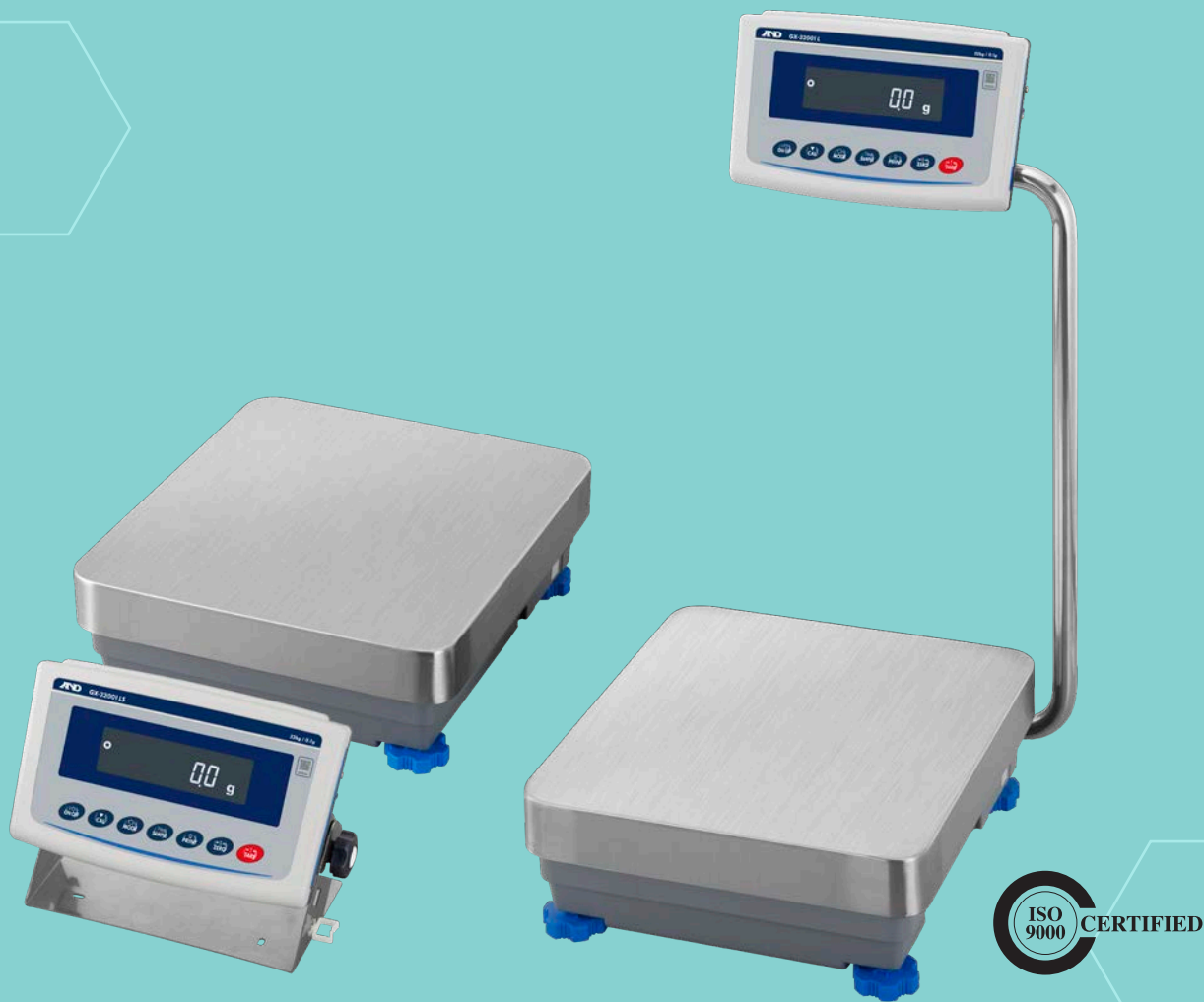# A&D Apollo

GX-L Series

High-Capacity Precision Balances

ISO 9000 CERTIFIED

A&D Weighing

High Capacity Balances
Ideal for Precision Weighing In Tough Industrial Conditions

The GX-L series, the successor to A&D's long-selling GP series, continues to allow precise weighing of heavy or large amounts of materials in demanding conditions. In addition, now as part of the A&D Apollo family, these models also offer various advanced features that make your weighing easier, more efficient and more accurate.

Flexible display position

Swing-arm display stand

Unlike the commonly utilized stationary display stand, the swing-arm display stand allows its angle to be adjusted by approx. 100 degrees. It can therefore be pulled down to create a bench configuration with a front display, or angled back for a higher/eye level display.

Applicable models
GX-12001L, GX-22001L,
GX-32001L, GX-32001LD,
GX-42001L, GX-62001L,
GX-62000L, GX-102000L

Separate display stand

There are also models available that have a separate display stand which allows the display unit to be installed away from the weighing platform (the cable length is approx. 10 ft), either on the floor, on a desk/bench, or on a wall.


Applicable models
GX-32001LS, GX-32001LDS, GX-62001LS,
GX-62000LS, GX-102000LS

Safeguard against harsh environments

IP65 dust and waterproof protection

The GX-L series, which is IP65-rated, is protected against dust ingress and can withstand water projected from any direction, as defined by the IEC/EN standard 60529. This makes the balance highly suitable for working with liquid or powder materials, or for use in dusty/ wet environments, with no need to worry about damage.
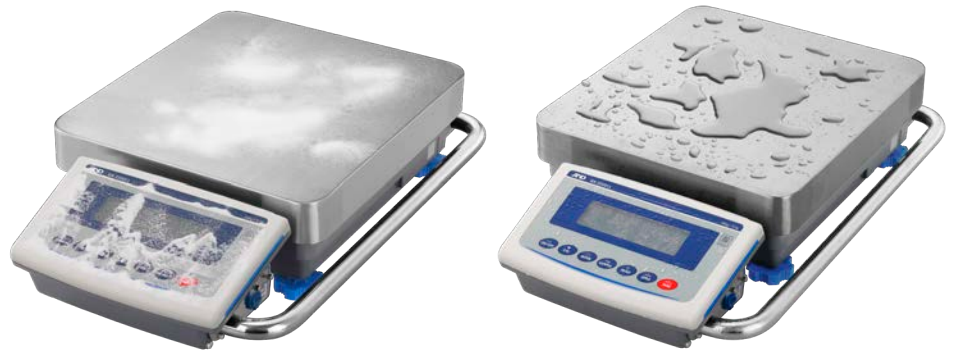
Additional Protection

Impact shock detection (ISD)

The weight sensor of a precision balance will be damaged if continually affected by loads with acceleration (impact shocks) which can easily shift values and cause errors.
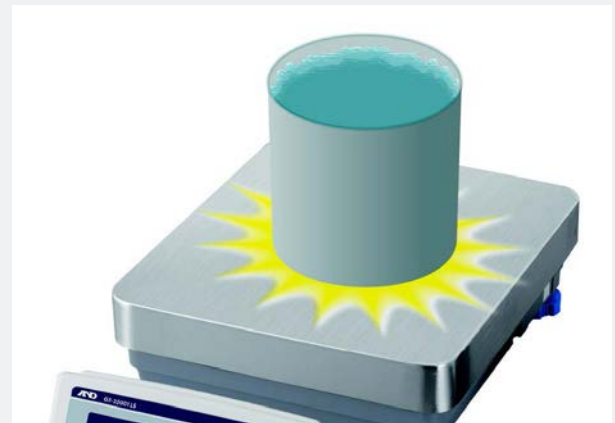
Impact-Alert

The GX-L series measures the magnitude of impact shocks received by the weight sensor at four levels. Also, one alarm is emitted if a Level 3 shock is received, and two alarms are emitted if a Level 4 shock is received (both of which should be avoided).

52 g	63 g	74 g	85 g	96 g
	SHOCK	SHOCK	SHOCK	SHOCK
No impact shock	Level 1	Level 2	Level 3	Level 4

Shock-Log

While the power is on, up to 50 impacts of Level 3 and Level 4 will be stored in the balance with a timestamp (combined with log-in user information when the password lock function is used).[1] This function is especially beneficial for quality managers, as it enables them to check and show how their balances were treated during use.

[1] Data will then be overwritten in order from the weakest impact.

Data output/communication

RS-232C (D-Sub 9-pin) and USB (Mini-B) interfaces as standard

The USB interface can be toggled between Quick USB mode (plug-and-play with weighing data output to a PC only) and Virtual COM mode (for bi-directional communication[2]). A USB cable (6 ft) is supplied as standard.

The GX-L series maintains IP65-rating when a USB cable is connected to the USB interface. For the RS-232C interface, a 16.5 ft waterproof RS-232C cable is available as a separately-sold accessory (AX-KO2737-500).

[2] Installation of dedicated driver software is required for Windows 8.1 or earlier.

Universal Flexi Coms (UFC)

This function enables customization of printout content and layout by editing and sending commands to the balance (dedicated software, WinCT-UFC, is available as a free download). Following the commands, the balance creates data to be output to either a printer capable of dump printing, such as the AD-8127 compact printer, or a commercially-available label printer[3] for barcode printing.

[3] A label printer that supports ZPL or ZPL II (ZPL and ZPL II are registered trademarks of ZIH Corp.)
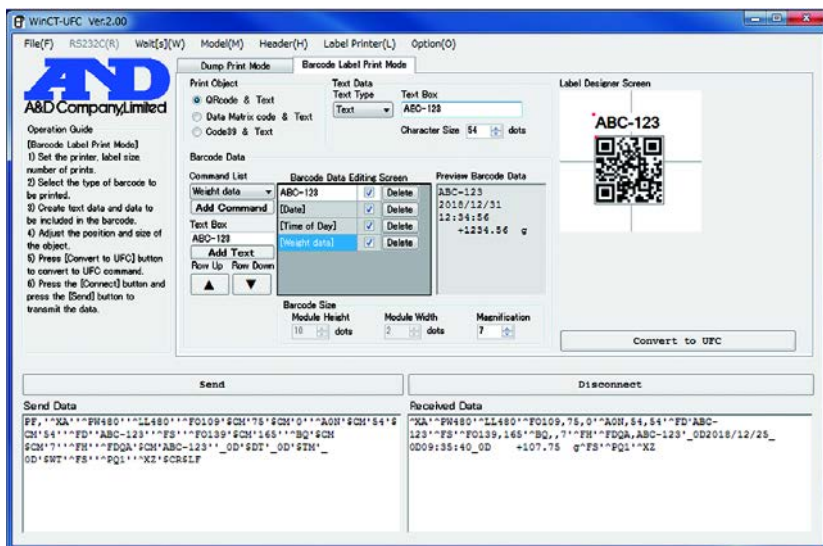
WinCT-UFC

GLP/GMP/GCP/ISO-compliant output

The balance manufacturer, model, serial number, ID number (set by the user), date + time, space for signature for sensitivity adjustment report, calibration test report, and title & end blocks for a series of weighing results can be output.

Gross/Net/Tare output

Upon receiving a command, or with key operation, the balance can also output the gross, net, and tare values.

Accuracy and precision management

AD-Just – Automatic self-sensitivity adjustment

The balance can be set to calibrate and adjust its sensitivity automatically using its internal weight according to the set execution condition (i.e. temperature change, preset time or interval) when the weighing pan is clear. An indicator blinks to give notice when the adjustment is about to start. Internal sensitivity adjustments can also be performed any time with just one key press.

Internal weight value correction

In cases where the internal weight value varies over time, it can be corrected by loading an external reference weight.

Automatic level detection & warning

The balance shows a blinking "TILT" on the display and blinks the spirit level LED when it detects a tilt to prevent inaccurate weighing due to the balance not being level.

Warning that the balance is not level

Automatic precision assessment (APA)

In APA mode, the balance first makes a quick diagnoses on whether there is a critical failure (Dia-Check), and then shows a repeatability test result (Standard Deviation) as well as the minimum weight (QuickMin-S) calculated using an electronically controlled load (ECL).[4] It takes less than 1.5 minutes and can be readily included in a daily check SOP.

[4] ECL is A&D's patented technology of generating a minute load (0.3 to 3% of the balance capacity) by purposely altering the equilibrium state of the electromagnetic force restoration sensor.

Automatic minimum weight calculation and implementation

You can enter the minimum weight into the balance by either direct key input, using the result of QuickMin-S, or having the balance calculate it from 10 repeated measurements of an actual external weight (the tolerance can be set to either 0.1% pursuant to USP Chapter 41, or 1%).
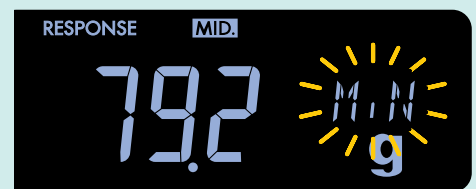
To ensure that the measured sample amount meets the minimum weight requirement, the balance can display an alert until the sample amount reaches the value entered as the minimum weight (Min-S Alert).[5]

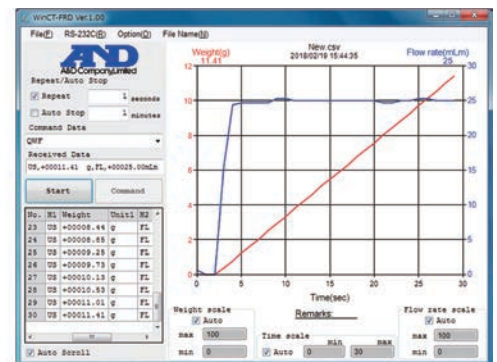[5] Only when g is selected as the unit of measure

Blinking minimum weight alert

Additional Features

Flow rate display (FRD)

FR-Cal

The balance can calculate and display/output the mass flow rate (the unit of measure can be selected from g/s, g/m or g/h), or the volume flow rate (mL/s, mL/m or mL/h) by entering the density of the material.[6] This function makes flow rate measurement much easier and more precise than manual calculation using a stopwatch. (Dedicated graphing software, WinCT-FRD, is available as a free download.)
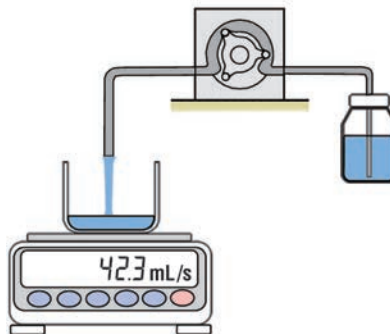
[6] Up to 10 densities can be saved to the balance.

WinCT-FRD

FR-Compare

The balance indicates whether the flow rate is maintained within the designated limits (either 3 levels or 5 levels). The results can be output using the optional GXL-04 interface (comparator output).

Tare memory

The tare value can be saved in non-volatile memory. When this function is activated, the power-on zero/tare is turned off. Therefore, even if the power supply is interrupted during weigh-in or loss-in-weight measurement (e.g. filling), the net value displayed before the loss of power is restored once the balance is turned on again.

Data memory

Each balance has a capacity to store up to 200 weighing results + 50 sensitivity adjustment/calibration test results (all with timestamps), and 50 unit masses to be used in counting mode, 20 sets of upper/lower limit values to be used in comparator mode, and 20 tare values for cases when no external memory device, such as a PC, is available.

User access control (UAC) and key lock

The GX-L series can be password-protected in two ways: The first is to limit use to authorized individuals (up to 11 including one administrator—the administrator can perform all operations while other users are limited to measurements and sensitivity adjustments[7] only) by setting a password for each user. The second is to set a password for just the administrator, allowing anyone else to use the balance without entering a password, but for measurements and sensitivity adjustments[7] only.

Upon receiving a command to disable its keys, the balance becomes operable only by sending commands from an external device, such as a PC. Alternatively, it is also possible to disable designated keys only (so as to avoid unnecessary/incorrect operations, etc.).

[7] The administrator can also restrict sensitivity adjustment so that others can perform measurements only.

Key Features

- Stabilization in approx. 1.5 seconds (typical) for fast, efficient weighing
- Adjustable response characteristics to optimize performance under the given environmental condition (e.g. draft, vibration, etc.)
- Clearly visible, reverse-backlit LCD (main character height: 17.8 mm/0.7")
- Counting mode with Automatic Counting Accuracy Improvement
- Density determination function for automatic density calculation
- Multiple units of measure: g, kg, oz, lb, lb-oz, ozt, ct, mom, dwt, pcs (counting mode), % (percent mode), DS (density mode), in addition to a user-programmable unit for conversion applications[8]
- Comparator display with buzzer for intuitive, error-free check weighing
- Capacity indicator that lets you know the remaining capacity of the balance

[8] One additional unit from either tael (Singapore/HK jewelry/Taiwan), tola, or Newton can be added upon request.

| IP 65 | Internal Calibration | Super Hybrid Sensor | Reverse Backlit LCD | USB Interface | RS-232C Interface | User Access Control | GLP Compliant | Date & Time |

Optional

| LAN•Ethernet Interface | Wireless Communication | Underhook |

| Memory Function | Impact Shock Detection | Flow Rate Display | Electronically Controlled Load | Optimizing Unit Weights | Percentage Function | Animal Weighing | Statistical Calculation | Comparator Function |

| Auto Power On | Auto Power Off | Ticket Formatting |

Specifications

Models	GX-12001L	GX-22001L	GX-32001L, GX-32001LS	GX-32001LD, GX-32001LDS
Capacity	12 kg	22 kg	32 kg	6.2 kg / 32 kg[*i]
Readability (d)		0.1 g		0.1 g / 1 g[*i]
Repeatability (std. deviation)		0.1 g		0.1 g / 0.5 g
Minimum unit weight[*ii]		140 g		
Linearity		±0.2 g		±0.2 g / ±1 g
Sensitivity drift (10 to 30 °C/50 to 86 °F, when automatic self sensitivity adjustment is OFF)		±3 ppm/°C		±5 ppm/°C
Operating environment		5 to 40 °C (41 to 104 °F), 85%RH or less (no condensation)		
Data memory		200 weighing results + 50 sensitivity adjustment/calibration test results (with timestamps), 50 unit masses for counting mode, 20 sets of upper/lower limit values for comparator mode, and 20 tare values		
Display refresh rate		5 times/second, 10 times/second, or 20 times/second		
Units of measure[*iv]		g (gram), kg (kilo gram), oz (ounce), lb (pound), lb-oz (pound-ounce), ozt (troy ounce), ct (metric carat), mom (momme), dwt (pennyweight), pcs (counting mode), % (percent mode), DS (density mode), and a user-programmable unit		
Counting mode — Minimum unit mass		0.1 g		1 g
Counting mode — Number of samples		10, 25, 50 or 100 pieces		
Percent mode — Minimum 100% reference mass		10 g		100 g
Percent mode — % readability		0.01%, 0.1% or 1% (depends on the reference mass stored)		
Communication interface		RS-232C (D-Sub 9-pin) and USB (mini B)		
Applicable calibration weight value	5 kg, 10 kg	5 kg, 10 kg, 20 kg	5 kg, 10 kg, 20 kg, 30 kg	
Weighing pan size		15.2" x 13.5"		
External dimensions		Swing-arm type (GX-L): 14.6" (W) x 24.2" (D) x 5.1" (H)[*v] / Separate type (GX-LS): 13.5" (W) x 17.4" (D) x 5.1" (H)[*vi]		
Net weight		17 kg		
Number of samples		5, 10, 25, 50, 100, or an arbitrary number of pieces		
Stabilization time		Reverse Backlit LCD (Character height: 0.7")		
Dust and waterproof rating		IP65		
Power supply/consumption		AC adapter / approx. 30 VA		
Standard accessories		Display cover, AC adapter, USB cable (6'), Cable clamp x 2[*vii]		

Models	GX-42001L	GX-62001L, GX-62001LS	GX-62000L, GX-62000LS	GX-102000L, GX-102000LS
Capacity	42 kg	62 kg	62 kg	102 kg
Readability (d)	0.5 g	0.1 g		1 g
Repeatability (std. deviation)	0.5 g	0.2 g	0.7 g	1 g
Minimum unit weight[*ii]	410 g	140 g	1.4 kg	
Linearity	±1 g	±0.5 g	±1 g	±2 g
Stabilization time (typical when set to FAST)		Approx. 1.5 seconds		
Sensitivity drift (10 to 30 °C/50 to 86 °F, when automatic self sensitivity adjustment is OFF)	±5 ppm/°C	±6 ppm/°C		
Accuracy immediately after internal sensitivity adjustment[*iii]	±1.5 g	±3 g	±5 g	±10 g
Operating environment		5 to 40 °C (41 to 104 °F), 85%RH or less (no condensation)		
Data memory		200 weighing results + 50 sensitivity adjustment/calibration test results (with timestamps), 50 unit masses for counting mode, 20 sets of upper/lower limit values for comparator mode, and 20 tare values		
Display refresh rate		5 times/second, 10 times/second, or 20 times/second		
Units of measure[*iv]		g (gram), kg (kilo gram), oz (ounce), lb (pound), lb-oz (pound-ounce), ozt (troy ounce), ct (metric carat), mom (momme), dwt (pennyweight), pcs (counting mode), % (percent mode), DS (density mode), and a user-programmable unit		
Counting mode — Minimum unit mass	0.5 g	0.1 g		1 g
Counting mode — Number of samples		10, 25, 50 or 100 pieces		
Percent mode — Minimum 100% reference mass	50 g	10 g		100 g
Percent mode — % readability		0.01%, 0.1% or 1% (depends on the reference mass stored)		
Communication interface		RS-232C (D-Sub 9-pin) and USB (mini B)		
Applicable calibration weight value	10 kg, 20 kg, 30 kg, 40 kg	10 kg, 20 kg, 30 kg, 40 kg, 50 kg, 60 kg	10 kg, 20 kg, 30 kg, 40 kg, 50 kg, 60 kg	10 kg, 20 kg, 40 kg, 50 kg, 60 kg, 80 kg, 100 kg
Weighing pan size		15.2" x 13.5"		
External dimensions		Swing-arm type (GX-L): 14.6" (W) x 24.2" (D) x 5.1" (H)[*v] / Separate type (GX-LS): 13.5" (W) x 17.4" (D) x 5.1" (H)[*vi]		
Net weight		17 kg		18 kg
Dust and waterproof rating		IP65		
Power supply/consumption		AC adapter / approx. 30 VA		
Standard accessories		Display cover, AC adapter, USB cable (6'), Cable clamp x 2[*vii]		

*i Smart range function: Automatically switches between the precision and standard ranges, and recovers the full precision range with a press of the TARE key.
*ii Pursuant to the United States Pharmacopeia (USP), Chapter 41
*iii Under a stable environment: No rapid temperature/humidity change, vibration, draft, magnetism, static, etc., between 10 °C and 30 °C (50 °F and 86 °F). The mass of the internal weight may vary with age.

*iv One additional unit from tael (Singapore/HK jewelry/Taiwan), tola, or Newton can be added upon request.
*v Dimensions when the swing-arm stand is pulled fully down.
*vi Dimensions of the base unit. The dimensions of the display unit is 260 (W) x 164 (D) x 202 (H) mm, and the cable length is 3 m.
*vii Not provided for the separate type (GX-LS).

Options

GXL-04[*9][*10]	Comparator relay output/buzzer/RS-232C/external key input interface
GXL-06[*9][*10]	Analog (0-1/0.2-1 V) output/RS-232C interface
GXL-07	5-meter cable for the GX-LS
GXL-08[*9][*10]	Ethernet (TCP/IP) interface
GXL-27[*9][*11]	Bluetooth® interface
GP-12	Animal-weighing pan
GP-16	AD-8127 printer support
GP-20	Underhook for models with 42 kg capacity or below
GP-21	Underhook for models with 62 kg capacity or above

Accessories

AD-1682	Rechargeable battery unit
AD-1683A	Static eliminator
AD-1684A	Electrostatic field meter
AD-1687	Weighing environment logger
AD-1688	Weighing data logger
AD-8127	Compact printer
AD-8526	RS-232C/Ethernet (TCP/IP) converter
AD-8920A	Remote display
AD-8922A	Remote controller
AX-GXL-31	Display unit cover (5 pcs)
AX-KO2737-500	Waterproof RS-232C cable (5 m)
AX-USB-9P	RS-232C/USB converter with cable

*9 Only one of GXL-04, GXL-06, GXL-08, GXL-27, or the standard (RS-232C and USB) interfaces can be used.
*10 The GX-L/GF-L series are not IP65 with GXL-04, GXL-06, or GXL-08.
*11 Please contact your local A&D representative to find out whether GXL-27 is certified for compliance with Bluetooth® communication laws in your country.
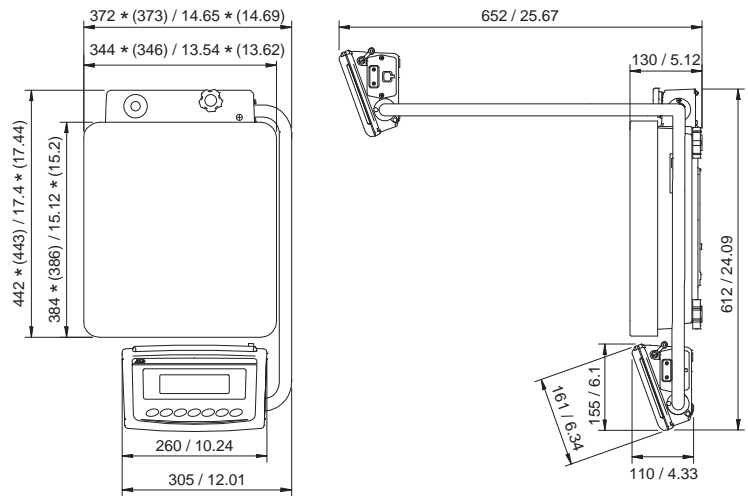
Dimensions

Unit: mm/inches

Swing-arm display

GX-12001L / 22001L / 32001L / 32001LD / 42001L / 62001L / 62000L / 102000L / 102000LD

*( ) for GX-102000L

Separate display

GX-32001LS / 32001LDS / 62001LS / 62000LS / 102000LS

*( ) for GX-102000LS